

Applicants: Wainwright et al.  
Serial No: 09/936,242  
Filed: February 1, 2002  
Page 5

### **REMARKS**

Claims 19-33 were previously cancelled. Accordingly, Claims 1-18 are pending.

#### **Present Invention and Claim Amendments**

The snack products of the present invention comprise potato flakes and/or granules. Flakes and/or granules are pieces of whole potatoes. The starch of these pieces have a high amylopectin content. Claim 1 recites that the amylopectin content of the starch of these pieces is at least 95 wt%.

One of the features of the present invention is that snack foods comprising potato pieces with high amylopectin starch provide an unexpectedly **increased expansion**. Claim 1 has been amended to emphasize that the increased expansion occurs upon cooking. Support for this phrase is throughout the specification, including, for example on page 5, lines 17-25, and page 14, lines 10-12 of the specification.

Cooking, as defined by Merriam-Webster, is "to prepare for eating by a heating process." Note, that dependent Claims 7 and 8 recite types of cooking, i.e., frying and baking.

Applicants: Wainwright et al.  
Serial No: 09/936,242  
Filed: February 1, 2002  
Page 6

**Rejection under 35 U.S.C. §112 (Written Description)**

Claims 1-17 have been rejected as failing to comply with the written description requirement. In particular, the examiner alleges that:

Claim 1 recites "amylopectin starch having an amylopectin content of at least 95 wt%, and wherein the amylose content of the amylopectin starch is less than 5wt%." This concept does not appear to be disclosed in the application. The specification only appears to teach the total amount of starch having 95% amylopectin content. (Office Action paragraph bridging pages 2 and 3.)

Applicants do not understand the Examiner's allegation. It is explicitly stated in the specification that the potato flakes and granules of the present invention "consists of at least 95%" amylopectin. (See page 4, line 16, and page 12, lines 2 and 7, of the specification.)

As known in the art, and stated on page 2, lines 9-22, of the specification, starch contains a mixture of two molecules: amylose and amylopectin. Natural starch consists of about 20-30% amylose and about 70-80% amylopectin. Thus, if a starch contains x% amount of amylopectin, then the balance of the starch (i.e., (100-x) %) consists of amylopectin.

Thus, a starch with an amylopectin content of at least 95 wt%, as recited in Claim 1, implies that the starch has an amylose content of less than 5 wt%. The phrase "wherein the amylose content of the amylopectin starch is less than 5 wt%" was added to Claim 1 in response to Examiner's allegation that "the features upon which applicant relies (i.e., a lack of amylose) are not recited in the rejected claim(s)." (See Office Action page 8, 2<sup>nd</sup> paragraph.) Applicants have reconsidered the addition of this phrase due to its possible redundancy, and have presently deleted such phrase from Claim 1.

Applicants: Wainwright et al.  
Serial No: 09/936,242  
Filed: February 1, 2002  
Page 7

Note at page 10, penultimate paragraph on page 10 of the Office Action, the Examiner states that "the features upon which Applicants relies (i.e., a complete lack of amylose) are not recited in the rejected claim(s)."

Applicants do not understand the Examiner's assertions. Claim 1 does not recite a "complete lack of amylose." Instead Claim 1 recites that the amylopectin content of the starch of the present invention is at least 95wt% amylopectin. Thus, it follows that the balance is amylose, as explained above.

**Rejection under 35 U.S.C. §112 (Indefiniteness)**

Claims 1-17 have been rejected as being indefinite. In particular, the Examiner asserts that:

Claim 1 recites "amylopectin starch having an amylopectin content of at least 95 wt%, and wherein the amylose content of the amylopectin starch is less than 5wt%." It is not clear how amylopectin starch can also be amylose starch.  
(Office Action page 3, paragraph 6.)

Applicants do not understand the Examiner's assertion. A definition of "amylopectin starch" is clearly provided throughout the specification. For example, see page 4, beginning on line 12, it is stated:

The expressions "high amylopectin potato flakes" and "high amylopectin potato granules" as used herein are to be understood as meaning potato flakes or granules, respectively, prepared from potatoes of which the starch has an amylopectin content of....preferably 95% or more...

Accordingly, "amylopectin starch" is clearly defined as having up to 5wt% amylose.

Applicants: Wainwright et al.  
Serial No: 09/936,242  
Filed: February 1, 2002  
Page 8

**Rejection under 35 U.S.C. §103 over Villagran in View of Tallberg and Buwalda**

Claims 1-9 and 15-18 were rejected under 35 U.S.C. §103(a) as being unpatentable over Martines-Serna Villagran *et al.* (U.S. Patent No. 6,544,580, hereinafter "*Villagran*") in view of either Tallberg *et al.* (U.S. Patent No. 5,824,798, hereinafter "*Tallberg*") and Buwalda ("Sheer Versatility" *Potato Business World* May/June 1998). (See Office Action pages 3-4, paragraph 8.)

The Examiner states that it would be obvious to incorporate the high amylopectin potato of *Tallberg* and *Buwalda* into the invention of *Villagran* because: i) *Villagran* teaches the use of "any commercially-available potato used to prepare flakes can be used to prepare the dehydrated flakes of the present invention" (col. 4, lines 23-26, of *Villagran*); ii) *Villagran* uses starch with a decreased amylose content (col. 7, line 31); iii) the high amylopectin potato starch of *Tallberg* has not been subjected to chemical modification; iv) the *Tallberg* potato eliminates the need for blanching and preconditioning required in *Villagran*; and v) the amylopectin starch of *Buwalda* provides improved expansion properties in snack foods.

The snack products of the present invention comprise potato flakes and/or granules. Flakes and/or granules are pieces of whole potatoes. The starch of these flakes and/or granules have a high amylopectin content, *i.e.*, an amylopectin content of at least 85% on a dry weight basis. (See page 4, lines 9-19, of the specification.) One of the features of the present invention is that the use of potato flakes and/or granules with high amylopectin starch content provides an unexpectedly increased expansion in snack foods. The examples of the present application clearly demonstrate such increased expansion. In particular, see the tables on pages 16 and 19. These tables show that replacing potato flakes/granules of normal amylopectin content with potato flakes/granules of high amylopectin content provides an increase in expansion. See page 5, lines 4-9, of the specification.

Applicants: Wainwright et al.  
Serial No: 09/936,242  
Filed: February 1, 2002  
Page 9

**PRIMARY REFERENCE: Villagran**

The Applicants will show that *Villagran* does not teach high amylopectin potato for use in their methods, and, in fact, teaches away from the use of high amylopectin potato pieces in their methods.

**High Amylopectin Potato was NOT Commercially Available at the time of Villagran's Application**

The Examiner states that *Villagran* teaches the use of "any commercially-available potato used to prepare flakes can be used to prepare the dehydrated flakes of the present invention" (col. 4, lines 23-26 of *Villagran*). Thus, the Examiner alleges that *Villagran* teaches that any flake, including high amylopectin potato flake, would be suitable in the methods of *Villagran*.

High amylopectin potato was NOT commercially available when *Villagran* was written. The priority date of *Villagran* is July 1, 1996 on which date two provisional applications were filed. The provisional applications were converted to a utility application on July 1, 1997. The instant *Villagran* patent was a divisional application filed from the utility application. Thus, the disclosure of *Villagran* was written no later than July 1, 1996. On such date, high amylopectin potato (either genetically engineered or in mutant form) was not "commercially available."

Since high amylopectin potato was not commercially available when *Villagran* was written, the high amylopectin potato pieces used in the present invention do not fit the definition of the types of potatoes suitable for the methods of *Villagran*. Applicants will provide a declaration to evidence when high amylopectin potato starch became commercially available.

Applicants: Wainwright et al.  
Serial No: 09/936,242  
Filed: February 1, 2002  
Page 10

Although not commercially available, high amylopectin potato was known when the *Villagran* application was written. Thus, apparently *Villagran* purposefully chose to exclude high amylopectin potato from the methods.

The fact that *Villagran* chose to exclude high amylopectin potato pieces from the methods is consistent with the fact that *Villagran* emphasizes throughout the patent that high amylopectin content is undesirable, as explained next.

***Villagran Teaches away from Starch with a Decreased Amylose Content in their Methods***

The Examiner points to col. 7, line 31, of *Villagran* for the teaching of starch with a decreased amylose content. In that section, *Villagran* describes flakes produced by blanching and preconditioning. Applicants disagree with the Examiner's assertions, as described below.

***Villagran states that high amylopectin starch is undesirable***

*Villagran* teaches a method of making dehydrated potato flakes prepared from potato pieces. *Villagran* states that "the cooking process is critical to obtaining the desired potato flake" (col. 4, line 50-51). (Emphasis added.) *Villagran* prescribes a precise slow cooking process to achieve the desirable potato flake. In the process, there is a slow continuous rise in temperature during the first third of the cooking cycle (col. 4, lines 55-67). *Villagran* states that such cooking will allow the potato granule to sufficiently cook, swell and gelatinize (sentence bridging col. 4 and 5).

*Villagran* also describes two types of cooking processes which would produce an undesirable flake. First, rapid cooking provides an undesirable flake. The undesirable potato

Applicants: Wainwright et al.  
Serial No: 09/936,242  
Filed: February 1, 2002  
Page 11

flake is described as having "low amylose content" (col. 5, lines 2-11). Second, overcooking produces an undesirable flake. The undesirable potato flake is described as having "high levels of gelatinized (amylopectin) starch..." (col. 5, lines 18-20).

Villagran explicitly states why high levels of amylopectin are undesirable. Villagran states that amylopectin starch "will produce a sticky dough" (col. 5, lines 18-20). Instead of using such sticky dough, Villagran emphasizes that the flakes resulting from their invention "can be used to prepare a more cohesive, non-adhesive, machineable dough."

Thus, Villagran clearly teaches away from using high amylopectin potato starch in their methods. In direct contrast, pending Claim 1 requires high amylopectin potato starch.

Villagran explicitly describes the amylose content of its flakes

At col. 7, line 39 et seq., Villagran states that its flakes have unique physical properties. The first of these properties is the amylose content of its flakes. At col. 8, lines 34-37, the dehydrated potato flake made from raw potato pieces comprise "from about 20% to about 27% amylose, preferably from about 22% to about 25%, more preferably about 21% to about 24% amylose." Thus, the most preferred range has more amylose than the broad range. Thus, contrary to the Examiner's contention Villagran does not teach that the less amylose is preferred.

Similarly, at col. 8, lines 38-41, the dehydrated potato flake made from pre-conditioned potato pieces comprise "from about 16% to about 20% amylose, preferably from about 17% to about 19% amylose, and more preferably about 18% amylose." Thus, the most preferred amylose content is higher than the broad range. Thus, again, contrary to the Examiner's contention Villagran does not teach that the less amylose is preferred.

Applicants: Wainwright et al.  
Serial No: 09/936,242  
Filed: February 1, 2002  
Page 12

It is key to note that the Examiner supports his point that "the preferred potato flakes" of *Villagran* have a decreased amylose content by pointing to col. 7, line 31, of *Villagran*. There, *Villagran* states that pre-conditioned potato flakes comprise "about 16% to about 20% amylose." As stated above, *Villagran* states that despite having potato with about 16% amylose, 18% amylose is most preferred. Thus, *Villagran* clearly does not teach that flakes with the lowest amount of amylose are preferred.

In direct contrast, pending Claim 1 recites a starch with an amylopectin content of at least 95wt%. Thus, it follows that the most amylose that the starch of Claim 1 can have is 5wt%.

Summary of the Teaching of *Villagran*

► *Villagran* states that its methods can be used with "any commercially-available potato." Although high amylopectin potato was known at the time, it was not commercially-available at the time *Villagran* was written. Thus, *Villagran* specifically excludes high amylopectin potato from its methods.

► *Villagran* teaches away from using high amylopectin potato flakes in its methods because of specifically recited undesirable characteristics of high amylopectin.

► *Villagran* teaches away from using high amylopectin potato flakes in its methods because it specifically states that flakes with 16% amylose were available, yet states that flakes with 18% amylose were preferred.

Accordingly, *Villagran* fails to teach the element of the claimed invention that the Examiner asserts is taught by the reference. Thus, *Villagran* fails as a primary reference.



Applicants: Wainwright et al.  
Serial No: 09/936,242  
Filed: February 1, 2002  
Page 13

**SECONDARY REFERENCES: Tallberg and Buwalda**

The Examiner states that it would have been obvious to incorporate the high amylopectin potato starch of *Buwalda* and *Tallberg* into the invention of *Villagran* because: i) *Villagran* teaches the use of "any commercially-available potato used to prepare flakes can be used to prepare the dehydrated flakes of the present invention"; ii) *Villagran* uses starch with a decreased amylose content; iii) the high amylopectin potato starch of *Tallberg* has not been subjected to chemical modification, making it more suitable as a food ingredient; iv) the *Tallberg* potato eliminates the need for blanching and preconditioning required in *Villagran*; and v) the amylopectin starch of *Buwalda* provides improved expansion properties in snack foods.

Applicants have demonstrated above that *Villagran* does not contemplate the use of high amylopectin potato pieces and in fact teaches away from it. Accordingly, the primary reference (i.e., *Villagran*) fails to teach the element of the claimed invention that the Examiner asserts is taught by the reference. In such a case, secondary references (i.e., *Buwalda* and *Tallberg*), in combination with the primary reference, or by themselves, cannot support the obviousness rejection. Thus, withdrawal of the obviousness rejection is respectfully requested.

Nevertheless, a review of each secondary reference (i.e., *Buwalda* and *Tallberg*) is provided to emphasize that it cannot, in combination with the primary reference, or by itself, support the obviousness rejection.

The Examiner alleges that *Buwalda* states that amylopectin potato starch provides improved expansion properties in snack foods.

Applicants: Wainwright et al.

Serial No: 09/936,242

Filed: February 1, 2002

Page 14

The Examiner has ignored that *Buwalda* teaches isolated potato starch; whereas *Villagran* teaches potato flakes, i.e., pieces. *Buwalda* does not teach anything about high amylopectin potato pieces. Accordingly, a skilled artisan combining *Villagran* with *Buwalda* would not produce the present invention. At most, the skilled artisan would use the isolated starch of *Buwalda* as an "other starch-containing ingredient" described by *Villagran* and combine it with the potato flake of normal amylopectin content as described by *Villagran* to form a dough composition.

The author of *Buwalda*, i.e., Dr. Buwalda, corroborated that his article only addresses isolated starch in his declaration (filed on April 18, 2007). However, even without Dr. Buwalda's declaration, it is clear from the article itself that only isolated starch is addressed. In the article, starch is discussed as a chemical, which may be suspended or dissolved, and derivatized. A skilled artisan of starch chemistry would not refer to starch in such a manner if he were discussing starch which is still contained in potato pieces (flakes, slabs or granules). Also see page 11, the middle column, first paragraph where it is stated: "As potato starch is a mixture of amylopectin and amylose, solutions have a tendency to retrograde." This statement cannot relate to potato pieces which also contain 20 wt.% of non-starch components such as proteins, fibers, non-reducing sugars and amino acids. Also, see page 12, 1<sup>st</sup> column, 3<sup>rd</sup> paragraph, which discusses the "solubility" of starch in hot and cold water.

The fact that *Buwalda* only teaches isolated starch is critical. There are essential differences in the physical characteristics (e.g., rheological characteristics) between isolated potato starch and potato pieces, as would be known by a skilled artisan. For example, in potato pieces, starch is embedded in a matrix of other constituents; whereas, isolated starch is not embedded in a matrix. The other constituents include soluble proteins, cell walls and other soluble materials (e.g., salts, sugars, and amino acids). Being embedded in a matrix, the starch in

Applicants: Wainwright et al.  
Serial No: 09/936,242  
Filed: February 1, 2002  
Page 15

the potato pieces is tied up and cannot behave in the same way isolated starch would behave.

A skilled artisan would have known about the fundamental differences between isolated starch and starch in potato pieces. Thus, knowing that isolated amylopectin starch provides improved expansion properties in snack foods would not have taught a skilled artisan anything about the effect amylopectin potato pieces may have on the expansion of snack foods. That is, the effect that isolated amylopectin starch has on expansion is virtually irrelevant to the effect amylopectin pieces may have on expansion.

*Tallberg* teaches genetic modification of potato plants to obtain amylopectin potato. It is significant that *Tallberg* was published (i.e., July 9, 1992) when the *Villagran* application was written. *Villagran* purposefully did not include high amylopectin potato flakes in their methods. This is consistent with the fact that *Villagran* teaches away from using high amylopectin potato pieces in their methods, as described in detail above.

The combination of *Tallberg* with *Buwalda* does not remedy the teaching away by *Villagran*. Due to the fundamental differences in the physical characteristics of isolated potato starch versus potato pieces, the effect isolated amylopectin starch has on expansion behavior teaches nothing about the effect pieces of amylopectin potato has on expansion behavior.

Summary of the Teaching of *Villagran*, *Buwalda* and *Tallberg*

- ▶ *Villagran* teaches away from using high amylopectin potato flakes in its methods.
- ▶ *Buwalda*'s disclosure regarding the effect of amylopectin starch on expansion teaches nothing about the effect of amylopectin potato pieces on expansion.

Applicants: Wainwright et al.  
Serial No: 09/936,242  
Filed: February 1, 2002  
Page 16

► *Tallberg* discloses the availability of amylopectin potato but *Villagran* did not include it in its methods.

Thus, there is no motivation or teaching to combine the references. In fact, there is a teaching away of combining the references. Accordingly, Applicants request withdrawal of this obviousness rejection.

**Other Rejections under 35 U.S.C. §103 with *Villagran* as Primary Reference**

Claims 10-14 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over *Villagran* in view of *Tallberg* and *Buwalda*, and further in view of Jeffcoat et al. (U.S. Patent No. 6,541,060, hereinafter "*Jeffcoat*"). (Office Action page 5, paragraph 9.)

Since the claims upon which Claims 10-14 depend are not obvious over *Villagran* in view of *Tallberg* and *Buwalda*, as discussed above, the further disclosure by *Jeffcoat* does not render Claims 10-14 obvious. Accordingly, Applicants request withdrawal of this obviousness rejection.

Claims 1-9 and 15-18 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over *Villagran* in view of *Buwalda* and *Ståhl* (U.S. Patent No. 5,759,597). (Office Action page 5, paragraph 10.)

As discussed above, in view of the teaching away by *Villagran*, a skilled artisan would not have been motivated to use amylopectin potato pieces in its methods; and *Buwalda* simply discusses isolated starch. *Ståhl* relates to amylopectin potato starch as a filling agent and thus adds nothing to remedy the deficiencies in *Villagran* and *Buwalda*. Accordingly, Applicants

Applicants: Wainwright et al.  
Serial No: 09/936,242  
Filed: February 1, 2002  
Page 17

request withdrawal of this obviousness rejection.

Claims 10-14 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over *Villagran* in view of *Ståhl* and *Buwalda*, and further in view of *Jeffcoat*. (Office Action page 7, paragraph 11.)

Since the claims upon which Claims 10-14 depend are not obvious over *Villagran* in view of *Buwalda* and *Ståhl*, as discussed above, the further disclosure by *Jeffcoat* does not render Claims 10-14 obvious. Accordingly, Applicants request withdrawal of this obviousness rejection.

Claims 1-9 and 15-18 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over *Villagran* in view of *Buwalda*. (Office Action page 8, paragraph 12.)

As discussed above, in view of the teaching away by *Villagran*, a skilled artisan would not have been motivated to use amylopectin potato pieces in its methods. *Buwalda* simply discusses isolated starch which teaches nothing about potato pieces, as discussed above. Accordingly, Applicants request withdrawal of this obviousness rejection.

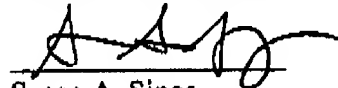
Claims 10-14 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over *Villagran* in view of *Buwalda*, and further in view of *Jeffcoat*. (Office Action page 9, paragraph 13.)

Since the claims upon which Claims 10-14 depend are not obvious over *Villagran* in view of *Buwalda*, as discussed above, the further disclosure by *Jeffcoat* does not render Claims 10-14 obvious. Accordingly, Applicants request withdrawal of this obviousness rejection.

Applicants: Wainwright et al.  
Serial No: 09/936,242  
Filed: February 1, 2002  
Page 18

Applicants respectfully submit that the application is now in condition for allowance, which action is earnestly solicited. If resolution of any remaining issue is required prior to allowance of this application, it is respectfully requested that the Examiner contact Applicants' undersigned attorney at the telephone number provided below.

Respectively submitted,



Susan A. Sipos  
Registration No. 43,128  
Attorney for Applicant(s)

HOFFMANN & BARON, LLP  
6900 Jericho Turnpike  
Syosset, New York, 11791  
(516) 822-3550

278057